

Everything Louder Than Everything Else



Recorded music is sounding worse!



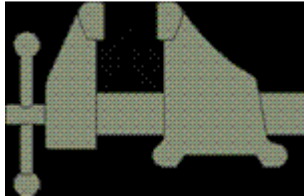
"You listen to these modern records, they're atrocious, they have sound all over them. There's no definition of nothing, no vocal, no nothing, just like -- static." Bob Dylan

Have you noticed that you are listening to new music less and enjoying it less? You get out the latest CD or iTunes download by your new favourite band, but strangely enough although you may like the songs, you don't really listen to it for very long. You skip tracks, you take it off, put it on again but there's something wrong that you just can't quite put your finger on. There's not that magical click in that part of your brain that enjoys music. It's like bad sex, you're doing it but it's just doing it for you. Why? I'm no sound expert (obviously), but I decided to do some research and find out why. Here's what I found.



For the past 10 or so years, artists and record companies have been increasing the overall loudness of pop and rock albums, using ever increasing degrees of compression during mastering, altering the properties of the music being recorded. Compression means squeezing the dynamic range of an audio signal, usually to boost the perceived volume of a song or performance. Compression works on recorded music the way MSG works on food; it makes everything sound stronger. MP3 players such as iPods have their own compressors and limiters, further reducing the dynamic range of recordings, as do computers. A CD doesn't have to be mastered loud; the iPod can make it as loud as

everything else it plays. Quiet sounds and loud sounds are now squashed together, decreasing the recording's dynamic range, raising the average loudness as much as possible, while the sound peaks (which would be too loud) have just been chopped off. When a soundwave squares off, something called "clipping" can occur, in the digital realm it means digital distortion, which is quite an unpleasant, static-like sound. Some players just won't play that frequency, resulting in loss of dynamic range, where you're literally not hearing the whole song.



The human ear responds to the average sound across a piece of music rather than peaks and crescendos. "The inner ear automatically compresses blasts of high volume to protect itself, so we associate compression with loudness", says Daniel Levitin, a professor of music and neuroscience at McGill University and author of *This Is Your Brain on Music: The Science of a Human Obsession*. "Human brains have evolved to pay particular attention to loud noises, so compressed sounds initially seem more exciting. But the effect doesn't last. The excitement in music comes from variation in rhythm, timbre, pitch and loudness. If you hold one of those constant, it can seem monotonous." After a few minutes, research shows, constant loudness grows fatiguing to the brain. Though few listeners realize this consciously, many simply feel an urge to skip to another song.

There used to be literal physical limitations to this process when vinyl was the primary recording medium -- the music's dynamic range was naturally restricted by the medium itself. During mastering, you could only compress so far; if the sounds were too extreme, the needle would pop out of the groove. It's not necessarily that vinyl sounds better, it's just that it's impossible for vinyl to be fatiguing. The LP could hold about 50 minutes of sound (25 minutes a side) if you really squashed the grooves together. As a result, most albums came in at about 40 to 45 minutes. The Beatles lobbied their record company, to get their records pressed on thicker vinyl so they could achieve a bigger bass sound.

With the advent of compact disc technology in the early 1980s, almost all of this went out the window, as CDs lacked the physical limitations of vinyl. CDs can hold about 80 minutes of sound, and artists have filled them up; the majority of major label pop CDs are an hour or more.

In theory, this was a good thing. The dynamic range of CDs was far larger than vinyl, and could closer replicate the highs and lows of actual performance. But something else happened. The saturation level for a sound signal is digital full scale, or 0dB. In the 1980s, the average sound level of a track was -18dB. The arrival of digital technology allowed engineers to push finished tracks closer to the loudest possible, 0dB. Now, modern CDs average at around minus 12 to minus 9 dB.



While the increase in CD loudness was gradual throughout the 1990s, some opted to push the format to the limit, such as on Oasis' *What's The Story Morning Glory* which reached -8 dBFS RMS on many of its tracks, a rare occurrence, especially in 1995. In 1997, Iggy Pop assisted in the remix and remaster of his 1973 *Raw Power* album, creating an album which, to this day, is arguably the loudest rock CD ever recorded. It has an RMS of -4 dBFS RMS in places, which is rare even by today's standards, though getting more and more common. The Red Hot Chili Peppers' *Californication*, branded "unlistenable" by studio experts, is the subject of an online petition calling for it to be "remastered" without its harsh, compressed sound. It clips constantly, and the title track peaks at a whopping minus 5.6 dB.



And it's not just new music, The new Led Zeppelin collection, *Mothership*, is louder than the band's original albums, while Elvis Presley's *30 #1 Hits* was mastered too loud, so that it is competitive with things like the new Foo Fighters record.

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